

What is Claimed is:

Sub-A1

1. A method for delivering generic data from a service application residing on a central server to a subscriber device by means of a Public Switched Telephone Network (PSTN) wherein the PSTN consists of a CCS/SS7 signaling network, a transport network, an originating Stored Program Controlled System (SPCS), a terminating SPCS, and a Signaling Transfer Point (STP), wherein the central server interfaces the PSTN through the originating SPCS and the subscriber device interfaces the PSTN through the terminating SPCS, and wherein the PSTN has no embedded knowledge of the generic data or service application residing on the central server, said method comprising the steps of:

5 defining a request message at the central server wherein the request message contains the generic data and data delivery instructions specified by the service application instructing the terminating SPCS on how to deliver the generic data to the subscriber device;

10 addressing the request message based on the subscriber's PSTN address;

transporting the request message from the central server to the PSTN over the originating SPCS – central server interface;

15 transporting the request message from the originating SPCS to the STP via a Transaction Capabilities Application Part (TCAP) message;

routing the request message based on the subscriber PSTN address to the terminating SPCS;

extracting the generic data and data delivery instructions from the request message;

20 transporting the generic data from the terminating SPCS to the subscriber device over the terminating SPCS – subscriber device interface based on the data delivery instructions specified by the service application;

defining a response message at the terminating SPCS wherein the response message contains status data indicating the status of the delivery of the generic data to the subscriber device;

25 transporting the response message from the terminating SPCS to the originating SPCS through the STP via a TCAP message;

transporting the response message to the central server over the originating SPCS-central server interface; and

delivering the status data to the service application.

30 2. The method of claim 1 wherein the originating SPCS - central server interface is a Simplified Message Desk Interface.

3. The method of claim 1 wherein the originating SPCS - central server interface is a Non-call Associated Signaling Integrated Services Digital Network interface.

Sub A1 4. The method of claim 1 wherein the terminating SPCS – subscriber device interface is a GR-30-CORE interface.

5 5. The method of claim 1 wherein the terminating SPCS – subscriber device interface is a Non-call Associated Signaling Integrated Services Digital Network interface.

6. The method of claim 1 wherein the terminating SPCS – subscriber device interface is a Digital Subscriber Loop Interface.

10 7. The method of claim 1 wherein the step of routing the generic request message includes the steps of:

determining if the NPA-NXX of the subscriber address has been ported;

querying a Local Number Portability Database for a Local Routing Number if the NPA-NXX has been ported; and

15 routing the request message based on the Local Routing Number if the subscriber address has been ported.

Sub A2 8. The method of claim 1 wherein the subscriber device interfaces the PSTN through the originating SPCS.

20 9. The method of claim 1 wherein transporting the generic data to the subscriber device occurs regardless of whether the subscriber device is off-hook or on-hook.

25 10. The method of claim 1 wherein transporting the generic data to the subscriber device does not require subscriber interaction.

11. The method of claim 1 wherein a call is never established between the central server and the subscriber device.

30 Sub A3 12. The method of claim 1 wherein the central server interfaces the PSTN through the STP, wherein the step of transporting the request message from the central server to the PSTN occurs through the STP-central server interface, and wherein the step of transporting the response message from the STP to the originating SPCS to the central server occurs from the STP to the central server through the STP-central server interface.

35 13. The method of claim 1 wherein the subscriber device is owned by a residential subscriber.

14. The method of claim 1 wherein the subscriber device is owned by a business subscriber.

Sub A4 5 15. The method of claim 1 wherein the step of transporting the generic data to the subscriber device further includes the step of over-riding vertical services defined for the subscriber device based on the data delivery instructions

10 16. A method for broadcasting generic data from a central server to a plurality of subscriber devices by means of a Public Switched Telephone Network (PSTN) wherein the PSTN consists of a CCS/SS7 signaling network, a transport network, an originating Stored Program Controlled System (SPCS), a terminating SPCS, and a Signaling Transfer Point (STP), wherein the central server interfaces the PSTN through the originating SPCS and the subscriber devices interface the PSTN through the terminating SPCS, and wherein the originating SPCS, terminating SPCS, and STP have no embedded knowledge of the generic data said method comprising the steps of:

15 defining a request message at the central server wherein the request message contains the generic data and data delivery instructions whereby the delivery instructions specify to the terminating SPCS a list of subscriber devices served by the SPCS that should receive the generic data and the means by which the generic data should be delivered to these subscriber devices;

20 addressing the request message with a PSTN address of one of the subscriber devices specified in the list of subscriber devices;

transporting the request message from the central server to the PSTN over the originating SPCS – central server interface;

transporting the request message from the originating SPCS to the STP via a Transactions Capabilities Application Part (TCAP) message;

25 routing the request message based on the subscriber PSTN address to the terminating SPCS; extracting the generic data and delivery instructions from the request message; and transporting the generic data based on the data delivery instructions to the list of subscriber devices.

Sub A6 30 17. The method of claim 16 wherein the list of subscriber devices specified in the request message is specified as a range of PSTN addresses.

35 18. The method of claim 16 wherein the list of subscriber devices specified in the request message is specified as all numbers within a NPA-NXX available on the terminating SPCS.

Sub A6 19. The method of claim 16 wherein transporting the generic data to each subscriber device occurs regardless of whether the subscriber interface is off-hook or on-hook.

20. The method of claim 16 wherein transporting the generic data to each subscriber device does  
5 not require subscriber interaction.

21. The method of claim 16 wherein the plurality of subscriber devices interface the PSTN through the originating SPCS.

10 22. The method of claim 16 wherein the plurality of subscriber devices are owned by residential subscribers.

23. The method of claim 16 wherein the plurality of subscriber devices are owned by business subscribers.  
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24. The method of claim 16 wherein a call is never established between the central server and the plurality of subscriber device.

Sub A7 25. The method of claim 16 wherein the plurality of subscriber devices are served by a plurality of terminating SPCS's, said method further comprising the steps of:  
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separating the subscriber devices based on their terminating SPCS;

defining a plurality of request messages at the central server, one request message per terminating SPCS, wherein the request message contains the generic data and data delivery instructions whereby the delivery instructions specify to the terminating SPCS a list of subscriber devices served by  
25 the SPCS that should receive the generic data and the means by which the generic data should be delivered to these subscriber devices;

addressing each request message with a PSTN address of one of the subscriber devices specified in its corresponding list of subscriber devices;

transporting each request message to its terminating SPCS; and

30 transporting, at each terminating SPCS, the generic data based on the data delivery instructions to the corresponding list of subscriber devices.

Sub C3 26. The method of claim 25 wherein a community notification service resides on the central server, said method broadcasting community notification information to the plurality of subscriber  
35 devices.

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27. The method of claim 16 further including the steps of:

recording at the terminating SPCS the list of individual subscriber devices to which the terminating SPCS could not deliver the generic data because said subscriber devices had been ported;

defining a response message at the terminating SPCS containing the individual subscriber devices that did not receive the generic data;

transporting the response message from the terminating SPCS to the originating SPCS through the STP via a TCAP message;

transporting the response message to the central server over the originating SPCS-central server interface;

defining a plurality of request messages at the central server, one for each subscriber device specified in the response message, wherein the request message contains the generic data and data delivery instructions;

addressing the plurality of request messages based on the PSTN address of each subscriber address; and

delivering the plurality of generic request messages to the subscriber devices.

28. The method of claim 27 wherein the central server interfaces the PSTN through the STP, wherein the step of transporting the request message from the central server to the PSTN occurs through the STP-central server interface, and wherein the step of transporting the response message from the STP to the originating SPCS to the central server occurs from the STP to the central server through the STP-central server interface.

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29. A method for delivering generic data from a central server to a subscriber device by means of an originating Stored Program Controlled System (SPCS), a terminating SPCS, and a packet router, wherein the originating SPCS, terminating SPCS, and packet router have no embedded knowledge of the generic data, said method comprising the steps of:

defining a request message at the central server wherein the request message contains the generic data and data delivery instructions instructing the terminating SPCS on how to deliver the generic data to the subscriber device;

transporting the request message from the central server to the originating SPCS, to the packet router, and to the terminating SPCS without establishing a call; and

delivering the generic data to the subscriber device based on the data delivery instructions.

30. The method of claim 29 further including the steps of:

recording in a response message the status of the delivery of the generic data to the subscriber;

and

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transporting the response message from the terminating SPCS to the packet router to the originating SPCS to the central server.

Sub A5  
5 31. A method for broadcasting generic data from a central server to a plurality of subscriber devices by means of an originating Stored Program Controlled System (SPCS), a terminating SPCS, and a packet router, wherein the originating SPCS, terminating SPCS, and packet router have no embedded knowledge of the generic data, said method comprising the steps of:

10 defining a request message at the central server wherein the request message contains the generic data and data delivery instructions, whereby the delivery instructions specify to the terminating SPCS a list of subscriber devices served by the SPCS that should receive the generic data and the means by which the generic data should be delivered to these subscriber devices;

transporting the request message from the central server to the originating SPCS, to the packet router, and to the terminating SPCS without establishing a call;

delivering the generic data based on the delivery instructions to the list of subscriber devices;

15 recording in a response message the status of the delivery of the generic data to the subscribers; and

transporting the response message from the terminating SPCS to the packet router to the originating SPCS to the central server.

20 32. A system for delivering generic data from a service application residing on a central server to a subscriber device by means of a Public Switched Telephone Network (PSTN) wherein the PSTN consists of a CCS/SS7 signaling network, a transport network, an originating Stored Program Controlled System (SPCS), a terminating SPCS, and a Signaling Transfer Point (STP), wherein the central server interfaces the PSTN through the originating SPCS and the subscriber device interfaces the PSTN through the terminating SPCS, and wherein the PSTN has no embedded knowledge of the generic data or service application residing on the central server, said system comprising:

means for defining a request message at the central server wherein the request message contains the generic data and data delivery instructions specified by the service application instructing the terminating SPCS on how to deliver the generic data to the subscriber device;

30 means for addressing the request message based on the subscriber's PSTN address;

means for transporting the request message from the central server to the PSTN over the originating SPCS – central server interface;

means for transporting the request message from the originating SPCS to the STP via a Transaction Capabilities Application Part (TCAP) message;

35 means for routing the request message based on the subscriber PSTN address to the terminating SPCS;

means for extracting the generic data and data delivery instructions from the request message;  
 means for transporting the generic data from the terminating SPCS to the subscriber device over the terminating SPCS – subscriber device interface based on the data delivery instructions specified by the service application;

5 means for defining a response message at the terminating SPCS wherein the response message contains status data indicating the status of the delivery of the generic data to the subscriber device;  
 means for transporting the response message from the terminating SPCS to the originating SPCS through the STP via a TCAP message;

means for transporting the response message to the central server over the originating SPCS-  
 10 central server interface; and

means for delivering the status data to the service application.

33. A system for broadcasting generic data from a central server to a plurality of subscriber devices by means of a Public Switched Telephone Network (PSTN) wherein the PSTN consists of a  
 15 CCS/SS7 signaling network, a transport network, an originating Stored Program Controlled System (SPCS), a terminating SPCS, and a Signaling Transfer Point (STP), wherein the central server interfaces the PSTN through the originating SPCS and the subscriber devices interface the PSTN through the terminating SPCS, and wherein the originating SPCS, terminating SPCS, and STP have no embedded knowledge of the generic data said system comprising:

20 means for defining a request message at the central server wherein the request message contains the generic data and data delivery instructions whereby the delivery instructions specify to the terminating SPCS a list of subscriber devices served by the SPCS that should receive the generic data and the means by which the generic data should be delivered to these subscriber devices;

means for addressing the request message with a PSTN address of one of the subscriber devices  
 25 specified in the list of subscriber devices;

means for transporting the request message from the central server to the PSTN over the originating SPCS – central server interface;

means for transporting the request message from the originating SPCS to the STP via a Transactions Capabilities Application Part (TCAP) message;

30 means for routing the request message based on the subscriber PSTN address to the terminating SPCS;

means for extracting the generic data and delivery instructions from the request message; and  
 means for transporting the generic data based on the data delivery instructions to the list of subscriber devices.

35 34. The system of claim 33 further comprising:

means for recording at the terminating SPCS the list of individual subscriber devices to which the terminating SPCS could not deliver the generic data because said subscriber devices had been ported;

means for defining a response message at the terminating SPCS containing the individual subscriber devices that did not receive the generic data;

means for transporting the response message from the terminating SPCS to the originating SPCS through the STP via a TCAP message;

means for transporting the response message to the central server over the originating SPCS-central server interface;

means for defining a plurality of request messages at the central server, one for each subscriber device specified in the response message, wherein the request message contains the generic data and data delivery instructions;

means for addressing the plurality of request messages based on the PSTN address of each subscriber address; and

means for delivering the plurality of generic request messages to the subscriber devices.

35. A method for enhancing Unified Messaging Services comprising a multi-functional server interfaced to both a PSTN and an Internet, a subscriber device interfaced to the PSTN through a terminating SPCS, and wherein the multi-functional server receives voice and fax messages from the PSTN and email, faxes, pages and Internet-based voicemail messages from the Internet, said method comprising the steps of:

defining a request message at the multi-functional server upon receiving a new PSTN or Internet based message, wherein the request message contains data indicating both the type and number of PSTN and ISDN based messages waiting, and wherein the request message contains delivery instructions instructing the terminating SPCS on how to deliver the data to the subscriber device;

transporting the request message from the multi-functional server to the terminating SPCS without establishing a call; and

delivering the data to the subscriber device based on the data delivery instructions.

36. The method of claim 35 wherein commercial Web servers are interfaced to the Internet, said method further comprising the steps of:

pushing data from the commercial Web servers to the multi-functional server; and

wherein the defined request message contains the data pushed from the commercial Web Server.